

WHAT IS CLAIMED IS:

1. A linear motor comprising:  
a stator;  
a movable element movable relative to said stator;
- 5 and  
a metal film formed on a surface of at least one  
of said stator and said movable element.
2. The linear motor according to claim 1, wherein  
said stator has a coil, and said movable element has a  
10 magnet.
3. The linear motor according to claim 2, wherein  
said coil is covered with a jacket.
4. The linear motor according to claim 3, wherein the  
jacket forms a flow path for supplying a refrigerant  
15 that cools the coil.
5. The linear motor according to claim 3, wherein  
said metal film is formed on a surface of the jacket.
6. The linear motor according to claim 2, wherein  
said metal film is formed on a surface of at least said  
20 stator.
7. The linear motor according to claim 6, wherein  
said metal film formed on the surface of said stator is  
formed at least at a portion thereof which opposes said  
movable element.
- 25 8. The linear motor according to claim 2, wherein  
said metal film is formed on a surface of said movable  
element.



a vacuum mechanism for evacuating said chamber.

19. An exposure apparatus comprising the stage apparatus according to claim 18.

20. The exposure apparatus according to claim 19,  
5 wherein the exposure apparatus is an electron beam exposure apparatus.

21. A device manufacturing method comprising:

preparing the exposure apparatus according to claim 19;

10 applying a photosensitive agent to a substrate;  
exposing the substrate by using the exposure apparatus; and

developing the exposed substrate.